REMARKS

The comments of the applicant below are each preceded by related comments of the examiner (in small, bold type).

> **Claims 110-112 and 115 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**
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> **Claims 110 and 115 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the second thermoplastic bonding component is not related to other limitations.**
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> **The remaining claims are also rejected under 35 U.S.C. 112, second paragraph, for being dependent upon a rejected base claim.**

The Applicant has amended the claims.

> **Claims 41, 42, 51, 63, and 64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 41, 51, and 63, "the land between each pair of adjacent units is at least 50 microns".**

The Applicant has amended the claims and points out that "a land between each pair of adjacent units of at least 50 microns" is supported, for example, by paragraph [0027] of the specification, which reads:

> Filter 300 includes a plurality of openings 302 having diameters of 25 to 30 microns, and spaced 48 microns apart, distance T. The openings 302 can form a hexagonal pattern having, for example, six openings along each side of the hexagon. The hexagons of the filter can be arranged in an edge-to-edge manner with a land between hexagons of at least 50 microns.

> **Claims 29, 33, 35, 36, 38, 39, 45, 48, 50, 52, 54-58, 60, 61, 85-87, 92-96, and 110-115 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moynihan et at. (US 6,755,511) in view of Baker (US 6,084,618).**
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> **Regarding claims 29, 45, and 52, Moynihan et at. discloses an apparatus (ink jet head, Fig. 1) and method (Fig. 1) comprising a piezoelectric element (34, 34') and a first bonding component heat-bonded to a surface the apparatus (column 3, lines 2-3); wherein the apparatus further comprises an ink channel (33, 33'), the piezoelectric element being positioned to subject ink within the channel to jetting pressure (column 2, lines 31-33), and electrical contacts arranged for activation of the piezoelectric element (column 2, lines 44-49).**
>
> **However, Moynihan et al. does not disclose:**

- regarding claim 29, 45, and 52, the first thermoplastic bonding component covering the ink channel and includes a filter.

Nevertheless, Baker discloses the first thermoplastic bonding component (column 3, lines 34-37) covers the ink channel (Figs. 1, 2) and includes a filter (32), the first thermoplastic bonding component includes an adhesive polyimide (column 3, line 36), the first thermoplastic bonding component includes a plurality of openings (34), the filter includes a repeating pattern of units having a plurality of openings (30, 32, Fig. 2) for the purpose of preventing particles from flowing downstream to the nozzles (Fig. 3). Furthermore, Baker discloses the polymer sheet (30) can be used for bonding (column 3, lines 34-37).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Moynihan et al. with the thermoplastic filter and bonding material as disclosed by Baker for the purposes of preventing particles from flowing downstream to the nozzles and bonding.

Even though Moynihan et al. as modified by Baker does not disclose applying pressure to the surface and the first thermoplastic bonding component during heating, it is common knowledge to apply pressure to the bonding elements for the purpose of holding the elements in place and heating the thermoplastic material for the purpose of melting it into a bonding liquid.

Claim 29 recites a thermoplastic bonding component that is "patterned to include a filter" and is "heat-bonded to a surface" of an apparatus to cover an ink channel of the apparatus.

Moynihan does not describe or would not have made obvious the features of claim 29. Baker does not remedy the deficiencies of Moynihan.

Baker describes a filter plate that includes (1) a polymer sheet on which filter areas containing bores or discrete holes are made, and (2) an adhesive coating coated on one surface of the polymer sheet to bond the polymer sheet to a wafer. As Baker explains:

> Bonded to wafer 24 is filter sheet or plate 30 having a plurality of filter areas 32 of which only several filter areas are depicted by solid rectangles. The number of filter areas 32 generally correspond to the number of via areas 26. In one form, filter sheet 30 is a polymer sheet having a coating of adhesive on one side and, preferably a sheet of polyimide having a phenolic coating as a bonding adhesive on one side thereof that will contact wafer 24. A single filter area 32 is shown in enlarged detail. Filter area 32 includes a plurality of small bores or discrete holes 34 that are preferably made or ablated by an eximer laser. Filter sheet 30 is placed over and bonded to wafer 24 such that each filter area 32 covers a via area 28. (Baker, col. 3, lines 30-42.)

Accordingly, Baker's polymer sheet and adhesive coating functions separately and independently, the polymer sheet as a filter and the adhesive coating to bond the filter to the wafer. Baker's polymer sheet that includes the filter does not bond to his wafer. Further, Baker does not disclose that his phenolic coating is a thermoplastic bonding material and can be heated to bond his filter to the wafer. Therefore, Baker does not disclose a thermoplastic bonding

material being "patterned to include a filter" and also being heat-bonded to a surface of an apparatus, as recited by claim 29.

Independent claims 45 and 52 includes similar features to claim 29 and are also believed to be allowable over Moynihan and Baker.

All of the dependent claims are patentable for at least similar reasons as those for the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

No fees are believed to be due. Please apply any other charges or credits to deposit account 06-1050, referencing attorney docket 09991-014001.

Respectfully submitted,

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